Grampaw Pettibone

Illustrations by Ted Wilbur

Spoiled by the Spoiler

An F-14B Tomcat was on approach to an airfield for a full stop landing. The checklist was completed and all was normal until the aircraft passed the 45-degree position during the approach turn. The pilot felt and observed an uncommanded left roll and yaw. He countered this with opposite (right) stick and rudder. The radar intercept officer (RIO) in the rear seat saw that the port number four spoiler was fully deployed. The pilot initiated a waveoff, selecting military power with slightly less than a 10-degree pitch attitude while trimming nose down.

As the aircraft accelerated and angle of attack (AOA) was reduced, the aircraft became progressively harder to control and needed increasing right stick and rudder to maintain near-wings-level flight. The uncommanded left turn continued with increasing left angle of bank despite the pilot's applying full counter-control inputs.

At 240 knots, as the aircraft reached the 135-degree point during the downwind turn, the Tomcat continued to roll left through 100-degree angle of bank. The pilot then initiated ejection. The aircraft crashed and was destroyed but the pilot and RIO were not injured.

Grampaw Pettibone says:

Close call. It's as scary as it gets when you're down low and the bird wants to tip over despite maximum effort to keep it upright.

In this accident, investigators learned the spoiler actuator was corroded, resulting in the inadvertent and unexpected extension of the spoiler. Apart from exceeding the 225-knot airspeed limitation while in the landing configuration, the crew did well. The Tomcat might have handled a little better if they'd slowed down from 240 knots.

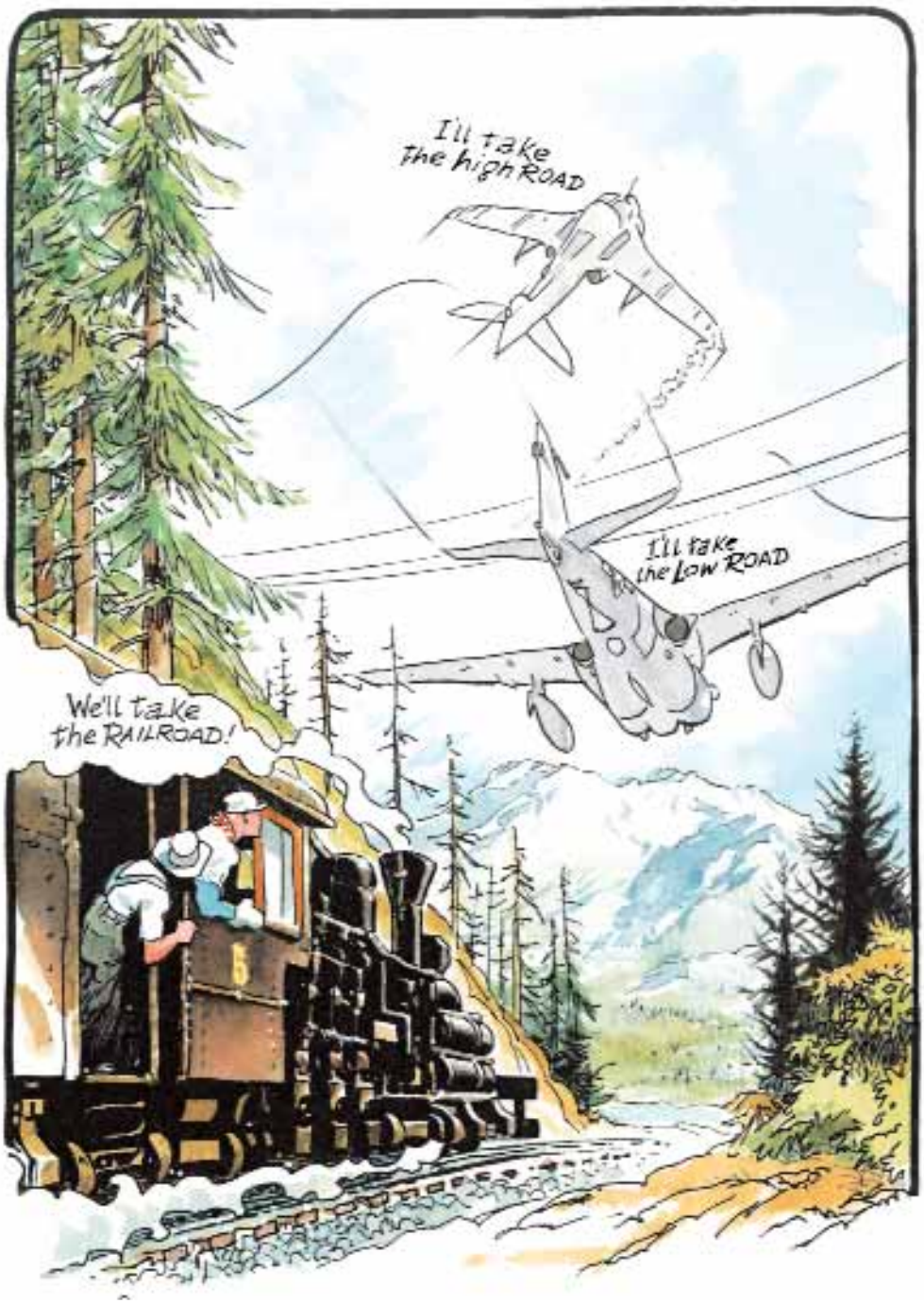
The investigators acquired new knowledge about the Tomcat from this accident. For example, wind tunnel testing after the mishap revealed a previously unidentified aerodynamic force: in one-G flight with flaps down configuration, the true AOA is negative when above 180 knots. In the negative AOA region, dihedral effect (roll due to sideslip) reverses. Right rudder inputs which normally result in right roll produce anywhere from no-roll moment to left-roll moment, depending on the AOA.

Anyway, regardless of the technicalities of 21st century aviation, the time-tested axiom—expect the unexpected—still applies. It's tough to honor this principle every minute of a sortie, but it's helpful to remember it when launching and recovering from shore or sea.

Gramps from Yesteryear

Fly by Wire

A section of A-6 Intruders was on a low-level flight in a scenic area of a foreign country. After completing a prebriefed simulated attack, the flight leader directed



another attack on a "target of opportunity," a small dam in a narrow and steep ravine not far from the first target.

The lead pilot was at the pull-up point for the second run when he saw power lines directly ahead of his A-6. Both crew members felt a thump. The bombardier-navigator then saw fuel venting from the forward edge of the right wing tip.

The wingman saw the lead pull up rapidly and the fuel venting from the wing. Upon returning his attention to the target area, the wingman himself saw power lines immediately in front of him. He started to pull up but decided he could not clear the wires. He pushed the nose down and flew below some cables and above others without striking them.

Both planes made it home but the lead Intruder had struck a 7/16-inch-diameter aluminum steel cable that was supported by a pair of 360-foot towers on either side of the gorge. The cable was approximately 750 feet above ground level and was clearly depicted on the appropriate navigational charts.

Grampaw Pettibone says:

Woe is me! Will we ever run out of wire cutters? Doesn't happen that much but as sure as the swallows return to Capistrano, somebody's gonna play dodge ball with power lines now and then—and lose.

Even if your vision is 20/20 or better, those slender strings in the sky are tough to see on low-levels and especially tough to hurdle. Study the charts, know where the lines are, know where you are, and stay above 'em!